

## CLAIMS

What is claimed is:

- 1 1. A method comprising:  
2 loading platform firmware during a pre-boot phase of a computer system by,  
3 executing a first portion of platform firmware code that is stored locally  
4 in the computer system;  
5 retrieving a second portion of platform firmware code from a remote  
6 firmware storage device; and  
7 executing the second portion of platform firmware code.
- 1 2. The method of claim 1, wherein execution of the first portion of platform  
2 firmware code performs the functions of:  
3 initializing a processor chipset and system memory;  
4 initializing a network interface; and  
5 establishing a network communication link with a network server via which  
6 the remote firmware storage device may be accessed.
- 1 3. The method of claim 2, wherein execution of the first portion of platform  
2 firmware code further performs the function of requesting the network firmware  
3 server to send a particular set of platform firmware code corresponding to the  
4 second portion of platform firmware code that is stored in a firmware file on the  
5 remote firmware storage device over the network communication link to the  
6 computer system.

1 4. The method of claim 3, further comprising determining a location of the  
2 firmware file on the remote firmware storage device.

1 5. The method of claim 4, wherein the location of the firmware file is determined  
2 by:  
3 passing platform identification information to the network server; and  
4 determining the location of the firmware file based on the platform  
5 identification information passed to the network server.

1 6. The method of claim 5, wherein the platform identification information  
2 comprises one of a processor identification code corresponding to a processor for  
3 the computer system or a model number for the computer system.

1 7. The method of claim 3, further comprising:  
2 creating configuration information that maps a pointer to an appropriate set of  
3 platform firmware code for the computer system with a network identifier for the  
4 computer system,  
5 sending a message to the network server requesting the network server to  
6 send back the appropriate set of platform firmware code; and  
7 extracting the network identifier from the message sent to the network server;  
8 and  
9 locating the appropriate set of platform firmware code via the pointer.

1 8. The method of claim 2, wherein the network firmware server is accessed via  
2 an Internet-based network communication link, further comprising:  
3 storing network location information address corresponding to the network  
4 firmware server on a local storage device; and

5 using the network location information to access the network firmware server.

1 9. The method of claim 1, wherein execution of the first portion of firmware code  
2 loads a driver that enables a pre-boot phase service on the computer system to  
3 access the second portion of platform firmware code from the remote firmware  
4 storage device.

1 10. The method of claim 9, wherein the second portion of platform firmware code  
2 is stored in a firmware volume (FV), and execution of the driver publishes an FV  
3 interface protocol instance that informs the pre-boot phase service that it can access  
4 the second portion of platform firmware code via the driver.

1 11. The method of claim 10, wherein the interface protocol instance comprises a  
2 software abstraction that enables consumers of firmware access to the firmware  
3 volume without requiring those consumers to know where or how the firmware code  
4 is stored in the firmware volume.

1 12. The method of claim 10, wherein execution of the driver publishes an first FV  
2 interface protocol instance corresponding to a first firmware volume, further  
3 comprising:

4 retrieving a first portion of the second portion of firmware code from the first  
5 firmware volume via the first FV interface protocol instance;

6 loading and executing the first portion of the second portion of firmware code,  
7 thereby causing a second driver to be loaded that publishes a second FV interface  
8 protocol instance that enables access to a second firmware volume; and

9 retrieving a second portion of the second portion of firmware code from the  
10 second firmware volume via the second FV interface protocol instance.

1 13. A method comprising:  
2 loading platform firmware during a pre-boot phase of a computer system by,  
3 executing a first portion of platform firmware code that is stored locally  
4 in the computer system that loads a driver that enables access to a firmware  
5 volume (FV) comprising a storage device in which a second portion of  
6 platform firmware code is stored;  
7 retrieving the second portion of platform firmware code from the  
8 firmware volume via the driver; and  
9 executing the second portion of platform firmware code.

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1 14. The method of claim 13, wherein execution of the driver publishes an FV  
2 interface protocol instance that informs a pre-boot phase service that it can access  
3 the second portion of platform firmware code via the driver.

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1 15. The method of claim 14, wherein the interface protocol instance comprises a  
2 software abstraction that enables consumers of firmware access to the firmware  
3 volume without requiring those consumers to know where or how firmware code is  
4 stored in the firmware volume.

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1 16. The method of claim 14, wherein execution of the driver publishes an FV  
2 interface protocol instance corresponding to a first firmware volume, further  
3 comprising:  
4 retrieving a first portion of the second portion of firmware code from the first  
5 firmware volume;  
6 loading and executing the first portion of the second portion of firmware code,  
7 thereby causing a second driver to be loaded that publishes a second FV interface  
8 protocol instance to a second firmware volume; and

retrieving a second portion of the second portion of firmware code from the second firmware volume.

17. A method comprising:

updating platform firmware for a computer system during a system boot-up operation by executing an early portion of platform firmware code that is stored locally in the computer system, causing the computer system to perform the operations of:

retrieving an updated set of platform firmware code from a remote firmware storage device; and

updating platform firmware code that is stored locally in the computer system by replacing at least a portion of existing platform firmware code with the updated set of platform firmware code or adding the updated set of platform firmware code thereto; and

executing a remaining portion of platform firmware code to complete the system boot-up operation.

18. The method of claim 17, wherein the first portion of platform firmware code is stored in a rewriteable memory device operatively coupled to a primary processor for the computer system and updating the platform firmware code comprises rewriting the rewriteable memory device.

19. The method of claim 17, further comprising determining whether or not an existing set of platform firmware code needs to be updated and updating the existing set of platform firmware code if it is determined the existing set of platform firmware code needs to be updated.

1 20. The method of claim 17, wherein the computer system is programmed to  
2 update its platform firmware code on a scheduled basis, wherein the computer  
3 system boots-up using the method of claim 8 when it is programmed to update its  
4 platform firmware code, otherwise the computer system boots-up in a conventional  
5 manner.

1 21. The method of claim 20, wherein a schedule for updating the set of platform  
2 firmware code is stored in a CMOS memory in which computer configuration  
3 information is generally stored.

1 22. A computer system comprising:  
2 a local storage device in which a first set of platform firmware instructions are  
3 stored; and  
4 a processor coupled to the local storage device,  
5 wherein execution of the first set of platform firmware instructions by the  
6 processor during a system pre-boot operation causes the computer system to  
7 perform the operations of:  
8 retrieving a second set of platform firmware instructions from a remote  
9 firmware storage device; and  
10 executing the second set of platform firmware instructions to complete  
11 the boot-up process.

1 23. The system of claim 22, wherein execution of the first set of platform firmware  
2 instructions performs the operations of:  
3 initializing a processor chipset and system memory;  
4 initializing a network interface; and

5 establishing a network communication link with a network server via which  
6 the remote firmware storage device may be accessed.

1 24. The system of claim 22, wherein execution of the first set of platform firmware  
2 instructions causes the computer system to further perform the operation of loading  
3 a driver that enables a pre-boot phase service on the computer system to access  
4 the second portion of platform firmware code from the remote firmware storage  
5 device.

1 25. The system of claim 24, wherein the second portion of platform firmware  
2 code is stored in a firmware volume (FV), and execution of the driver publishes an  
3 FV interface protocol instance that informs the pre-boot phase service that it can  
4 access the second portion of platform firmware code via the driver.

1 26. A non-volatile memory component in which a first portion of platform firmware  
2 instructions are stored that when executed by a processor causes a computer  
3 system in which the processor is operating to perform the operations of:  
4 retrieving a second portion of platform firmware code from a remote firmware  
5 storage device; and  
6 executing the second portion of platform firmware code.

1 27. The non-volatile memory component of claim 26, wherein the non-volatile  
2 memory component comprises a flash ROM component disposed on a motherboard  
3 of the computer system.

1 28. The non-volatile memory component of claim 26, wherein execution of the  
2 first portion of platform firmware instructions performs the operations of:

3       initializing a processor chipset and system memory;  
4       initializing a network interface; and  
5       establishing a network communication link with a network firmware server via  
6       which the remote firmware storage device may be accessed.

1       29.    The non-volatile memory component of claim 19, wherein execution of the  
2       first portion of platform firmware code further performs the operation of loading a  
3       driver that enables a pre-boot phase service on the computer system to access the  
4       second portion of platform firmware code from the remote firmware storage device.

1       30.    The non-volatile memory component of claim 29, wherein the second portion  
2       of platform firmware code is stored in a firmware volume (FV), and execution of the  
3       driver publishes an FV interface protocol instance that informs the pre-boot phase  
4       service that it can access the second portion of platform firmware code via the  
5       driver.